9. Last abdominal segment shining, polished ..... 10.
Last abdominal segment dull, rugose ..... 11.
10. Spots smaller, distinct, median barely touching sutural margin *pedunculatus.*
Spots larger, confluent, median distinctly coalescent with the sutural margin ..... *floridensis.*
11. Posterior coxal plates rounded at apex, scarcely perceptibly angulate; 1st and 2d joints of middle tarsi in male strongly produced *shermani.*
Posterior coxal plates angulate; 1st and 2d joints of middle tarsi in male thickened, but scarcely produced ..... *oppositus.*
2. Elytra without subhumeral spot or dash of black ..... 12.
Elytra with a more or less distinct spot or dash of black, hind coxal plates distinctly angulate at apex, produced .....*duodecempunctatus.*
12. Base of head with black collar, apices of posterior coxal plates angulate *edentulus.*
Base of head without black collar, apices of posterior coxal plates rounded ..... *lengi.*
3 Species smaller, bright, spots distinct, apices of posterior coxal plates subangulate ..... *littoralis.*
Species larger, dark, spots indistinct, hump-backed, apices of posterior coxal plates rounded ..... *tortulosus.*

THE PASSING OF THE HICKORY NUT?[1]

By Henry Bird,

Rye, N. Y.

I want to depart from my usual theme on this occasion and call your attention to a coleopterous matter. I wish to say a word relating to *Scolytus quadrispinosus.*

Along about Columbus-Davis day, in other words October 12, or thereabouts, I begin to be fond of sitting by the open grate fire, cracking hickory nuts, and planning campaigns for the next year. But my pleasures of late have been marred by the lack of hickory nuts, and in so far as the supply is local, it would seem the time is near when we can say goodby to the hickories altogether. The weevil that attacks the nut I have always classed a despicable varmint, and have enjoyed sizzling many of them, but we are confronted of late years by another trouble, more important since it spells the death of the trees.

[1] Read before the New York Entomological Society, December 3, 1912.

I refer to the work of the hickory bark borer, *Scolytus quadrispinosus* Say, with which you are all familiar. It takes two years as a rule for the work of this beetle to cause the complete death of a mature tree, but when a tree is fairly infested there seems little hope for it. The economic bureaus have been considering the matter for some time but the remedy suggested, so far as I have learned, is for a rather idealistic treatment that at present cannot avail, at least in my locality. As you are doubtless aware the larvæ of *quadrispinosus* pass the winter in their galleries beneath the bark and do not hatch out till the last of June. At the time of their emergence the beetles bore their way out to the surface, producing the shot-hole effect so characteristic of their work. At this time, however, the damage is done, the girdling effect of the larvæ in working across the bast fibers that carry the sap is finished and the portion of the tree above the infestation is in a dying condition. The remedy advocated by the bureaus, and a natural one, is the cutting down and burning of infested trees during the winter and spring, thus exterminating the larval supply. Excellent, if it were nearer the millennium such suggestions might be all right, and if it were the inception of an introduced species such a course would be the only thing to consider. But we have to do with an indigenous species, a very general and widespread infestation, and there are no laws compelling people to cut their trees down, were they expert enough to do so at a proper time. At the first when a tree is chosen by the female beetles as being in a proper state for ovipositing, it takes an expert indeed to know that soon there will be thousands of young larvæ working under the bark and that ultimately, in the coming June or earlier, the tree will show signs of impending doom. Before the emergence holes are seen there is no clue to guide the uninitiated, and after the beetles have gone out there is no use in felling the tree. Even did a confiding public stand ready to follow every direction, they could hardly tell what trees to destroy. To the average person who must judge from the foliage appearance of his trees which ones he must cut down, the period of efficiency, when the larvæ could be destroyed, is very brief.

A healthy tree in August has its bark infested with numerous egg cells. No indication is evidenced in the foliage up to the time the leaves fall, and the buds seem healthy during the winter. Hickories are late in starting and it is well in May before the trouble is mani-

fested with certainty. Even then only the upper portions may be involved, and any one would naturally hesitate to take out such a tree. But it is in this short time from May first to the middle of June that the evidence must be weighed and the removal made, if such operation is to be of any avail at all.

In my little burg of Rye, the four and a half square miles under incorporation contain many hundred trees dead and dying from these attacks, but nothing short of an earthquake could get the thirty-five hundred property holders to act in sufficient unison in destroying the larvæ at a proper time, when what would seem a sacrifice of their own trees was for the general good of mankind, and for their neighbor in particular.

I think we must look in another direction and confine saving treatment to parks, lawns, and preserves where the owner is willing to incur some expense, and the management is under competent supervision. There are other ways to save a few of the hickories, I am very sure.

Briefly reviewing the life history we find the beetles coming forth from the last of June to the middle of July; they do not mate at once but flock around the trees, or fly to new territory. They are on the wing, so to speak, all through July and take some sustenance apparently in chewing into the bases of the leaf petiole. Here they mine a little cavity, large enough to crawl in, and this work subsequently causes the leaf to fall. They often mate in these borings, but it is not till well in August that the females are in condition to place their eggs. This they do by chewing a hole through the bark to the sapwood, of the trunk and larger branches, beginning at, and including usually the upper third of the tree. The boring is enlarged underneath the bark, in this cell the eggs are placed, and in a few weeks the larvæ hatch out. This brings us to the middle of September. Up to the time the larvæ hatch no harm is done, but whatever we do by way of prevention must be effective by that date.

Two methods of treatment are suggested, one, where a repellent is used at the time the beetles oviposit, some ill-smelling spray like whale-oil soap which will cause them to shun the tree; the second, and probably safer method, is to treat the little holes leading to the egg cells with something that will fix the eggs and yet not injure the tree. The latter is not quite the task it might seem since the females

oviposit only in the trunk and out on the branches till they get down to, say, one inch and a half in diameter. I know of trees forty feet high, punctured by between two and three hundred females for their egg cells, that were thoroughly treated in three hours, with no more elaborate outfit than a small squirt-can oiler, and a quart of gasolene. Both schemes worked all right in so far as they have been tried, and up to this date no injury has resulted from using the gasolene. So, in the case of valuable trees a repellant can be tried, and if ineffectual, it can be followed up with a treatment of the egg cells.

In selecting the trees that suit them the beetles choose those of weakened vitality, their sense in this direction being very keen. It would be hard to say why a certain tree here, and one there, is chosen, but this feature is at once obvious to one following up their work.

I am led to offer these remarks since many in charge of valuable plantings have thrown up their hands in dismay over a simple matter like this. Were they confronted by some of the real propositions in boredom, I won't say whether they are among the lepidopters, or not, there might be some excuse for despair.

THE NORTH AMERICAN SPECIES OF LISPA (DIPTERA; ANTHOMYIDÆ).[1]

BY J. M. ALDRICH,

MOSCOW, IDAHO.

While the Anthomyidæ in general have justly acquired the reputation of being very difficult to classify, and at the same time highly uninteresting, there are a few groups that are not only easily recognized, but also of considerable scientific interest. If these were better known, it might take the curse off the family; fuller knowledge would inevitably create more interest, and with a few entomologists the family might become even a favorite. Hence it is very desirable that such genera as are susceptible of easy definition be worked out, as a beginning.

[1] This paper is one of the results of an investigation of western salt and alkaline lakes, carried on with the aid of an appropriation from the Elizabeth Thompson Fund.